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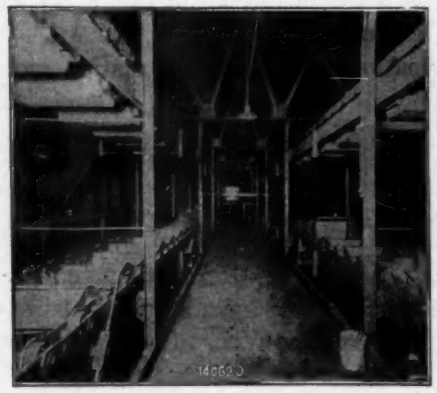
An Innovation of Fifty-two Years Ago



Duplicate installation of Hunt Pivoted Bucket Conveyors, where continuous service, with provision for emergencies, is necessary. This is the type of installation recommended to preclude the possibility of expensive shut-downs.

WE DESIGN AND BUILD:
Conveyors, Skip Hoists, Coal Crackers, Weighing and Measuring Devices, Industrial Railways, Automatic Railways, Cable Railways, Electric Vibrating Screens, Cut-off Valves or Gates, Cars, Tracks, Switches, Motor Cars, Scales, "Stevedore" Transmission and Hoisting Rope.

"A contrivance placed in the fire house of Engine Number 7, in Jersey City, N. J., by which the hammer attached to the gong, on first rising to strike an alarm of fire, unfastens the horses in their stalls and turns on all the gas throughout the building."

We quote the foregoing from a news item in the March 2, 1872, issue of the American Gas Light Journal. This was indeed an ingenious contrivance, as measured by such novelties of the time.

This novelty is gone and forgotten. But another innovation was presented to the gas fraternity that same year, 1872, which has lived and been of inestimable benefit to the gas industry: HUNT'S COAL AND ASHES CONVEYOR.

Old gas men will tell you how the HUNT PIVOTED BUCKET CONVEYOR helped them to handle coal and ashes with greater speed, with less labor and at least cost.

Today, HUNT COST CUTTING EQUIPMENT, composed of many units,—used separately, or in combination,—is contributing its quota toward the production of lower cost gas by reducing the expense of handling and rehandling Coal, Coke and Ashes.

Hunt Engineers, with over half a century of experience to draw from, and an abundance of reliable data, will gladly assist in planning a handling system for present use and future expansion.

C. W. HUNT COMPANY, Inc.

West New Brighton, New York City

New York Office—Whitehall Building

PHILLIPS, LANG & CO., Inc.,
431 So. Dearborn St., Chicago, Ill.

ERNEST F. LEARNED,
141 Milk St., Boston 9, Mass.

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ROOTS

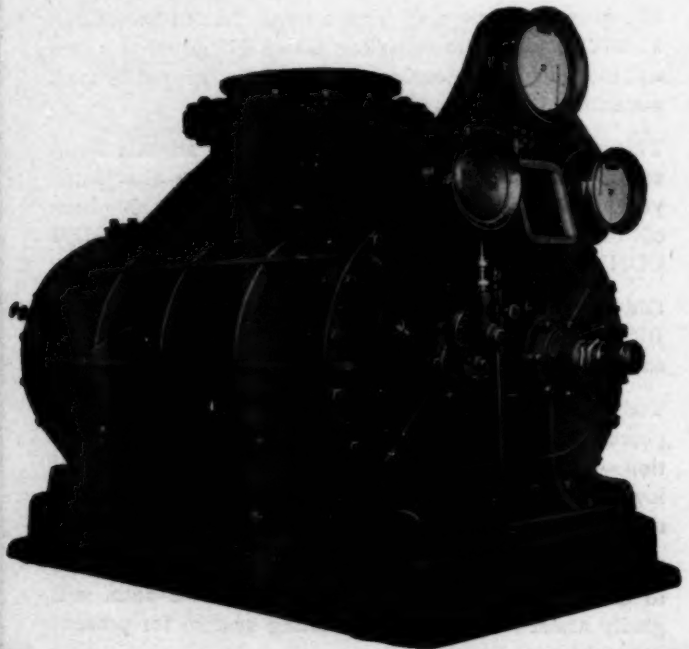
Roots Meters Make Good Where Other Meters Fail

The Roots Positive Displacement Gas Meter will meet every requirement for a perfect station meter.

It costs just a fraction of the amount asked for other types with corresponding accuracy. The cost of a Roots meter is even less than the cost of repairing your old style Wet Drum Meter, while recent tests have shown Roots Meters to be more accurate.

Why watch water levels, corrosion, etc., or why be troubled at all when you have a small, strongly constructed meter, large range capacity and pressure, and a convenient instrument board?

Catalog III contains more information on the perfect station meter. Write for it.



ROOTS Gas Exhausters and Boosters have been the standard for Gas Works for a generation. Ask us about the new ROOTS Stuffing Box design.

ROOTS Rotary Blowers for Water Gas Sets require only half the steam and much less maintenance.

ROOTS Rotary Pumps are best for Wash Oils. Tar, Gas Oil, etc.

The P. H. & F. M. ROOTS CO.

CHICAGO
Peoples Gas Building

CONNERSVILLE, INDIANA

NEW YORK
120 Liberty Street

CLEVELAND
1576 Union Trust Building

AMERICAN
GAS JOURNAL

Vol. 121. No. 2 NEW YORK, JULY 12, 1924 Whole No. 3470

Producing the Permanent Wave

A new and novel use for gas

J. Jares

GAS, the universal fuel that has been put to so many uses, has scored again and come out a winner.

The beautiful curls on little Mary's doll, Aunt Betty's wavy switch (made of her own combings, of course) and the lady's from next door greatly admired marcel wave, of the slip over your own hair variety, has all been permanently waved by heating in a gas oven.

Now that the story is half given away, let us get the rest of it and get acquainted with the principles of permanent waving and see how it is done with gas.

The Principle of Permanent Waving

If we were to look at cross-sections of several types of human hair under a microscope, we would observe that their shapes are different. Cross-section of a straight hair would resemble a circle, that of a naturally wavy hair would appear as an ellipse, while that of a very frizzly hair would have the likeness of a narrow band. From these pictures we may draw but one conclusion, and that is that when straight hair becomes wavy it loses its roundness and assumes a more or less flat shape. Consequently, the art of permanent waving is really a process of changing the shape of hair.

Why Ordinary Curling Is Not Permanent

When hair is waved with an ordinary curling iron the combined action of heat and pressure of the hot iron flattens out the hair and makes it wavy. This wave, however, is not permanent, because the temperature of the irons cannot be raised sufficiently high to effect a permanent change in shape of the hair without scorching it. Hair so waved gradually swells up to its original round shape under influence of moisture and becomes straight. To produce a permanent wave hair must be stretched and flattened at the same time and be baked with moist heat at proper temperature until its structure is permanently changed. Permanently waved hair is not affected by moisture and remains wavy for a long time.

To apply gas heat for permanent waving on human head is obviously impractical, so for this purpose electrically heated devices are used. For manufacturing purposes, however, where large quantities of hair are waved, where economy in fuel cost as well as adaptability to large scale production is essential, gas is the ideal fuel.

The Process

To prepare the hair for waving it is first washed, dried and drawn into thin strands about the thickness of a pencil. These are tightly wound on short wooden sticks and are held in place by means of cotton tape. The character of the waves can be varied by the method of winding, and their size by the thickness of the sticks.

The heating may be accomplished in several ways. One of the widely used methods is to boil the hair for a short time, and then dry and bake it in an oven. Another process is to soak the hair in cold water until the sticks are thoroughly saturated and then just bake it in covered pans, in a preheated oven. An old process was to introduce the sticks into a paste made of flour and sawdust and bake the loafs in bread baking ovens.

Use of Indirect Heated Gas Ovens

With the development of the modern indirect heated gas ovens, equipped with automatic temperature regulators, the simple process of baking of wet hair in closed pans is given preference over the older methods, as it requires less equipment and less handling of material. Due to the uniform temperature obtainable with these ovens, the results are very satisfactory.

After baking, the hair is removed from the sticks and is ready for use in manufacture of hair goods.

The finished hair goods are not ready to be worn

until after another trip to the oven. Just as a new dress or suit must be steamed and pressed to acquire the desired finishing touch, so must the hair be suitably dressed to receive a necessary natural appearance.

Final Dressing

To perform this final dressing the pieces are mounted on overstuffed head-shaped blocks in the same position which they would occupy when worn, and are laid in marcel waves or coiled in puffs or curls while wet. This process is called water waving and is considered to be the most difficult branch of the hairdresser's art. The water-waved goods are baked once more to set the waves in their proper position.

Hair so treated is now permanently waved and may be combed and washed repeatedly without losing the wave. After each washing the hair makes another trip to the gas oven for re-dressing.

A National Appliance Testing Laboratory

The first step in a nation-wide movement to protect the gas-consuming public from poorly constructed appliances was taken in New York recently, when the executive board of the American Gas Association announced that it had approved the creation of a fund sufficient for the establishment of a national appliance testing laboratory.

Supporting the project will be the United States Bureau of Mines, Standards and Public Health, the 1,000 manufactured gas and 700 natural gas companies in the United States and Canada, and several hundred manufacturers of appliances.

Present plans call for the location of the laboratory in New York City. The operating personnel will comprise the best engineering talent in the public utility business and the various Government bureaus.

Purposes of Laboratory

The puposes of the laboratory, according to officials of the association, are to increase the efficiency of gas utilization, raise the construction and performance standards of all gas appliances, eliminate as far as possible the use of inferior and inadequate appliances and provide the customer with the maximum utilization service possible.

It is understood that every type of gas burning appliance on the market will be submitted for test to the laboratory. If an appliance meets existing and future construction and performance standards it will bear the laboratory's stamp of approval. Only such appliances as bear this approval will be sold by the gas companies, and they, in turn, will make it their duty to see that all appliances coming into their territories through dealers are of known merit as determined by official laboratory test.

According to Alexander Forward, secretary-manager of the American Gas Association, the laboratory movement is in behalf of the 13,000,000 customers of gas companies and means the gradual elimination of dangerous and poorly constructed appliances.

Importance of Step

"All branches of the gas industry are united in the belief that the laboratory affords the most logical and practicable means of establishing standards which the public can use as a guide in purchasing appliances," Mr. Forward said. "The industry is thoroughly awake to the appliance situation in all its various phases and the laboratory project is a definite step in the direction of guaranteed appliances.

"Once the laboratory is established, we believe that the gas companies will do their full part by endeavoring to limit the sales of appliances to those bearing the official stamp of approval; that the manufacturers will help by promptly submitting their appliances for test and will join in this movement for the highest standards in the industry; and that all together will join loyally in this demonstration of good faith with the public and thus deserve in fuller measure the confidence of those whom we serve."

FAILS TO FIND SUBSTITUTE FOR GAS HEAT

It is becoming more and more evident that the efficient conservation of our coal resources can be accomplished only through the increased use of manufactured gas for cooking and heating. The substitution of electricity for these and similar purposes, even when generated by water power, for very good reasons will probably never be realized, according to a recent bulletin of the Smithsonian Institution.

"It would take about six times as much coal," the article points out, "to generate electric energy for house heating, as would be required to use the coal direct in the home."

On the other hand, it takes considerably less coal to heat a house by gas than if coal were used direct.

"If the 46 million horse power of undeveloped water powers in the United States were fully developed," the bulletin continues, "and this without regard to whether it was good business to do so, this total hydro-electric energy could heat less than 4 per cent of our homes. The home heating problem must be solved by proper use of available fuels."

Tying Up Advertising

The medium of the theatre program

By Special Correspondent

TYING up advertising with events of interest came to your correspondent's notice again when he was perusing a program at the Heilig Theater in Portland, Oregon, where "Lightnin' " was being played.

I had seen the play in Chicago, but as I do not get much good comedy out here on the coast, I wanted to see the interesting play again, especially as Joe Jefferson's son is now taking the title role.

Between the acts there are intermissions of eight minutes each and, like the rest of the audience, I was perusing the program when my eye struck the following reading notice:

"Lightnin's run of 3 years in N. Y., 2 years in Chicago and 1 year in Boston augurs well for the conversion of the stage from Jazz and Sex problems to **clean,** entertaining amusement.

Clean! A magic word. Ever thing how much Cleanliness means to you? A clean city, a clean home, a clean body, all are essential. But to be clean, to remove dirt, Cold water won't do. It takes Hot Water and plenty of it. Admittedly the best fuel to heat with, be it air or water, is Gas! Therefore you should have a Gas Tank-heater or Automatic.

But how, with Heilig seats at $5.50 a pair? Well, the Portland Gas & Coke Co. **will finance you** by easy payments. Just call on them at Fifth and Alder or phone Main 6500."

This reminded me of the way I was led into reading about heating a home with gas when I attended the same theater to see the play called "Sally," where I cut out the following item for future reference:

The Story of "Sally"

"There is a real story to 'Sally,' the plot relating to a foundling, adopted by a rich widow, who becomes a dish washer in a Washington Square restaurant, where she is befriended by a waiter, who turns out to be a Grand Duke in disguise.

"The subsequent adventures of Sally when called upon to impersonate a great actress and her later meeting with the Grand Duke, form a comedy background for a romantic love story.

"In love with Oregon scenery and Portland roses, the duke and duchess settle in the Rose City and to their delight find a house with all modern conveniences such as his dukeness had never dreamed of in his European castle.

"Sally was delighted. Her house was automatically heated by gas. The duke didn't have to split common wood with a plebian axe, nor degrade his own highness by fooling with ashes.

"When Sally turned the faucet, there was the hot water on tap, for the little gas heater responded to the touch of a button. And the Ziegfeld dinners she and dukey concocted on the wonderful new gas range! Nn wonder they lived happy ever after."

And also a few days previously, when Robert Mantell played Richelieu, Macbeth and two other plays, and the gas company's reading matter was as follows:

"Richelieu—in the bright lexicon of youth, there's no such word as 'fail.' In spite of that statement they failed to enjoy life as we do nowadays, with our gas-heated hot water on tap in every modern home.

"Macbeth—lay on Macduff, and darned be he who first cries 'halt! enough!' Mrs. Macbeth must have been nagging for a gas tank heater. Mac had to go and get one. Served him right.

"As You Like It—nice and brown, crisp and juicy. Not wishy-washy, slowly boiled down, pale and tasteless, but as you like it, that's the way your food is when cooked on gas, the quickest, best and cheapest fuel.

"Julius Caesar—Friends, Romans, Countrymen, lend me your ear and I'll whisper to you that in a few days this North American continent is going to stage 'National Gas Range Week.' "

I was telling the sales manager of the Portland Gas & Coke Company how I was "taken in" by the Lightnin' story—and found myself quoted in the program of the very next show I attended, which was "The Unwanted Child." The second paragraph, without mentioning my name, quoted the very words I had used when speaking of the previous ad.

The quite unusual program for "The Unwanted Child" was entirely gas propaganda excepting the front page, which gave the cast.

The back page was a full-page ad of the Simplex Junior Ironer, showing a pretty woman seated on a chair very comfortably passing her ironing through the gas-heated machine, the heading of the ad being "A Perfect Darling," and underneath that a cut of the ironer, and underneath the cut, "is what the women call the Simplex Junior Ironer."

The inside two pages were given over to the following comments:

The Unwanted Child"

"What chance has the Unwanted Child? It's sad to contemplate that such a problem exists nowadays. Time was when woman's greatest glory was her family, man's greatest desire to have sons to carry on his good name.

"Today the child may not be welcome or it may be spoiled. Someone blamed the Portland Gas & Coke Co. for this spoiling of our children. Think of it!

"And he wasn't joking, either, for he thought that the woodpile, while unsightly, and the kindling and

(Continued on page 638)

Gas House Tales

A bed-time story for gasmen—selling will sell

William H. Matlack

HENRY SMITH being an average American, if there is such an animal, spends somewhere in the neighborhood of 40 per cent in excess of his income and when the 28th day of each month rolls around Henry has to do a lot of mental arithmetic. "How will I divide the dough this month?" is a regular question that Henry asks himself, and answers thus: "Well, there's the electric company, the water company, the coal and ice man, the milkman, the grocer, the butcher, the telephone company, there's that payment on 'the over-stuffer,' and there's the gas company," and Henry accordingly sets out to plot his curve, with the result that the safety factor has again to be strained to the limit. "There's nothin' to it," he says, "we've got to cut down somewhere, 'cause I've got to get me some B. V. D.'s and the kid has to have shoes and the Mrs. needs a new uniform."

With this he crams all the "has-to-pay" bills, as he calls them, into his pocket, to be paid during the lunch hour or before returning home for the day. About noon-time we find Henry starting out on a voyage to pay up. The route he takes is something along this order: the butcher, the baker and the milkman are paid, then the telephone company and the water company and the fellow who sold the Mrs. the "over-stuffed" (price an' all) on the "extortion plan."

Paying the Gas Bill

This leaves only the gas company and the electric company bills to be paid when we catch up with him. We follow him into the office of the gas company. It happens to be nearest at hand, and as we enter he has just placed his gas bill on the counter before the clerk, and we hear him say: "Look here, whattayer think of that—there's no way under the sun I could use all that gas. Why, there's only two of us in the family, three countin' the baby, who don't eat the grub we cook on our gas range, and here I get a bill for three dollars. Why, it can't be right; there's something the matter with that meter. I'll cut out this gas business—I can't stand it. Why, we only eat one meal a day."

The Complaint

At about this point the clerk has an opportunity to say a word and he picks up Smith's bill and agrees, "Yes, Mr. Smith, you are right; your bill does seem high. We will send out and examine your meter. There's surely something the trouble out at your house. You should not use so much gas."

With this, Smith pays his bill and walks out and the clerk makes out "an investigate high bill complaint."

Paying the Electric Bill

Now gather around, gas men, for we are going to follow Smith on down the street to the electric company's office. Here Smith enters and walks up to the counter where bills are paid and, as we edge up, we hear him say: "Look here, what do you think of this? Say, how do you fellows get that way—an electric bill for ten dollars and only me and the wife in the family and one little child that goes to bed with the chickens? Why, man alive, we do not burn up that much juice. It can't be right. That man did not read our meter."

At or about at this point the clerk, who has been busy with a card index, has an opportunity to get a word in edgewise and, laying a card before Smith, he says: "Why, Mr. Smith, your electric bill is very reasonable—not at all excessive, for our records show that there are twenty-two lamp outlets in your home. You have an electric iron, a vacuum cleaner, a washing machine, an electric grill, a percolator, an immersion heater, a radiant heater and an electric hot pod. Mr. Smith, I am of the opinion that you are getting off pretty easy. What do you expect for ten dollars?"

The Bill Is Paid

At this Smith reaches for a ten-spot and says not another word and as he starts out the young man who has been walking about, up front, steps up to him and says: "Mr. Smith, I want to show you two wonderful little electric appliances we have just put on the floor. This fan arrangement here is the best thing we have ever had. It makes the kitchen a fit room to work in; it carries off all obnoxious odors of cooking and keeps the kitchen fresh and clean. Then here is a bell ringing transformer, and this little cylinder is a battery charger for your automobile—just hook it into an ordinary socket. Thank you, Mr. Smith, we'll get these things right out to you and charge them on your next month's bill." Smith, having been sold again, passes out, and as he goes through the front door you hear him say: "Ain't it wonderful what a fellow can do with electricity? I don't see how we got along without all these things."

Putting Over the Sales Idea

How do they do it, you ask yourself, if you are a gas man. How do they put over this idea? The answer is simple. The electric man says, "Electrify your home," and not being content with the mere saying, he immediately proceeds to see that the home

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INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

Lesson No. 28

Expansion Effect of Heat

THE Industrial Gas Lessons up to this point have been concerned with the general definition of heat, the mode of its generation, the manner in which it is transmitted from place to place and the way in which its temperature effect can be measured. The next step in the development of the main subject is the discussion of the effects of heat in detail, so that the various changes that are effected by it can be measured and determined with mathematical accuracy. In the use of heat for industrial purposes the engineer must always bear in mind the changes that this form of energy induces in the substance that he uses in the construction of his furnaces and heating apparatus as well as on the materials that are being treated in the same. These changes may be of two kinds, physical and chemical, and they are both of considerable importance.

Physical Changes

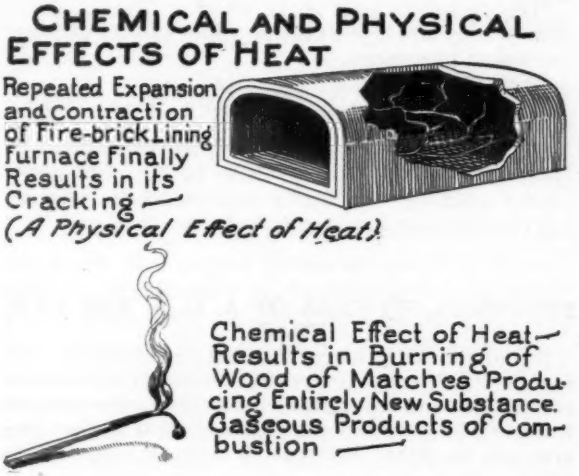
The physical changes represent those changes that are induced by heat, which last only for the time that the heat is applied. After the heat is removed, the substance or apparatus returns to its original condition. In other words, this effect of heat is not permanent, at least, to a certain extent. It is, of course, possible that the physical effects of heat on the materials used in the construction of the furnace or gas appliance will eventually result in the deterioration, if not total destruction, of the same, not for the reason that new materials are formed, but for the simple reason that the repeated heating and cooling of the materials finally causes their physical disintegration. Thus the lining of a furnace may be so affected by the expansion and contraction caused by alternate heating and cooling that it finally cracks and has to be renewed.

Chemical Changes

Chemical changes are also effected by heat. Heat will cause the rusting or decomposition of the heated substance, due to its combination with the oxygen of the air. This change is permanent once it occurs and it is only necessary for the proper temperature to be reached to result in the burning of the substance. The chemical effects of heat will be discussed later. For the present we are solely concerned with the physical effects.

Expansion of Solids, Liquids and Gases

The general rule is that as the temperature increases solids, liquids and gases will expand, although it has been shown that under certain conditions the contrary takes place. In the case of solids expansion takes place both in the length of the solid as well as in its volume. In other words, when a bar of iron is heated, its length becomes greater, but its volume or cubical contents are also increased.


CHEMICAL AND PHYSICAL EFFECTS OF HEAT
Repeated Expansion and Contraction of Fire-brick Lining Furnace Finally Results in its Cracking —
(A Physical Effect of Heat)
Chemical Effect of Heat — Results in Burning of Wood of Matches Producing Entirely New Substance. Gaseous Products of Combustion —

Thus, if the original length of the solid were l_1 and the new length l_2, the corresponding temperatures t_1 and t_2 and a, the coefficient of expansion, which is designated as the amount of expansion taking place for one degree F. or one degree C. rise in temperature, as the case may be, a general formula may be written for the new length l_2.

This formula is $l_2 = l_1 [1 + a (t_2 - t_1)]$.

Use of Formula

The use of this formula is illustrated in the following example: A steam pipe is 700 feet long and is anchored at one end when cold at a temperature of 60 degrees F. The question asked is how much will the free end of the pipe move when the temperature is raised to 560 deg. F., due to superheated steam passing through the same.

From the table of coefficients of line expansion

which are given in the following, it is seen that the coefficient for iron is 0.00000556 on the assumption that the pipe is made from cast iron. The following equation may then be written and easily solved:

$l_1 = 700\ [1 + 0.00000556\ (560 - 60)]$.

$l_1 = 700\ [1 + 0.00278] = 700 \times 1.00278$, or 701.946 feet.

It is clear that the pipe will expand 1.946 feet over its entire length when the superheated steam is passed through. This clearly demonstrates the necessity of making due allowance for the expansion of steam pipes and in fact of all kinds of apparatus which are subjected to high heat. Disaster would be sure to happen if the steam pipe were fastened tightly at both ends.

TYING UP ADVERTISING

(Continued from page 635)

ashes, while a nuisance, gave the boys some chores, which the advent of the automatically controlled gas furnace did away with.

"Time was when sonny had to carry the hot water, pail by pail, every Saturday night, whether he needed a bath or not.

"Daddy had to split stove wood or Jimmy did it. Now Jimmy sits in the movies, while mother uses her automatic gas range.

"And such is life in a big city!"

"I was sitting in a box," said Mr. W—— "during the intermission at 'Lightnin'' last Sunday. A man just below me said to his lady friend: 'Here is another of those ads; I read them in spite of myself until I suddenly awaken to find that I am absorbing the fact that you can do it better with gas.'"

PROPOSED OFFICERS OF A. G. A. FOR NEW YEAR

Nominations for officers of the American Gas Association for next year have been made by the various committees and reported as follows. These nominations will be considered and passed upon in the General and Sectional meetings in Atlantic City in October:

General Nominations

For president—Harry C. Abell, New York, N. Y.

For vice-president—Charles L. Holman, St. Louis, Mo.

For treasurer—H. M. Brundage, New York, N. Y.

For members of executive board, to serve two years—D. D. Barnum, Boston, Mass.; R. B. Brown, Milwaukee, Wis.; Howard Bruce, Baltimore, Md.; M. B. Daly, Cleveland, Ohio; Henry L. Doherty, New York, N. Y.; Oscar H. Fogg, Baltimore, Md.; Chas. A. Munroe, St. Louis, Mo.

D. J. Young, Tacoma, Wash.

Sectional Nominations

Accounting Section—For Chairman, H. C. Davidson, Consolidated Gas Company, New York; for vice-chairman, DeWitt Clinton, Worcester Gas Light Company, Worcester, Mass.

Commercial Section—For chairman, J. P. Hanlan, Public Service Gas Company, Newark, N. J.; for vice-chairman, J. B. Myers, the United Gas Improvement Company, Philadelphia, Pa.

Industrial Gas Section—For chairman, H. O. Loebell, Combustion Utilities Corporation, New York; for vice-chairman, F. F. Cauley, the Peoples Gas Light and Coke Company, Chicago, Ill.

Manufacturers' Section—For chairman, Wendell L. Smith, A-B Stove Company, Battle Creek, Mich.; for vice-chairman, Watson Derwent, Geo. D. Roper Corporation, Rockford, Ill.

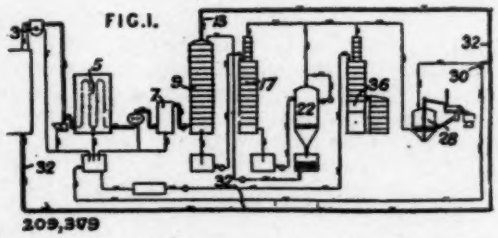
Publicity and Advertising Section—For chairman, Frank LeRoy Blanchard, Henry L. Doherty & Co., New York; for vice-chairman, Arthur W. Hawks, Jr., Consolidated Gas, Electric Light & Power Co., Baltimore, Md.

Technical Section—For chairman, Geo. H. Waring, Powers Theater building, Grand Rapids, Mich.; for vice-chairman, R. C. Cornish, American Gas Company, Philadelphia, Pa.

PURIFYING GAS

The process is for treating gases containing ammonia, sulphuretted hydrogen, carbon dioxide, etc. Coke oven gas from an oven 1 passes through a cooler 5 and tar extractor 7 to a scrubber 9, where it is treated with a solution of sodium carbonate containing a small proportion of bicarbonate. All the ammonia is extracted in the scrubber, and the liquor is distilled by steam in the column 17, all the ammonia and some sulphuretted hydrogen and carbon dioxide are thus recovered, and any remaining gas is driven off in an evaporator 22. The ammo-

FIG. I.



niacal liquor which condenses in the collecting main, etc., is distilled in a still 36, and the gases from the units 17, 22, 36 are passed into a saturator 28 to obtain ammonium sulphate. The unabsorbed gas is passed into the gas main 32 and may be used to heat the ovens. The liquor used in the scrubber 9 may alternatively be of such a concentration that most of the sulphuretted hydrogen but not the ammonia is absorbed. The liquor is treated as described above and the unabsorbed gas is treated in a second saturator. The portion of gas which is used for heating the ovens may not be treated with alkaline liquor, but may be freed from tar and then passed into a saturator.—British Patent No. 209,379.

As The Journal Views It

THE WINDOW DISPLAY

In a recent article published in the American Gas Journal, some particularly pertinent facts regarding the functions of the window and store display in the merchandising of gas appliances were discussed. It may be said that the average gas man, while he may realize that window and store displays have a certain role to play in the gas business, nevertheless does not really appreciate their importance as an aid to the selling of gas appliances and of gas. It is well strongly to dwell on this fact and lay special emphasis upon it. Each and every gas man and each and every gas company should be aware of the real function and of the material assistance, in the merchandising end of the business, that can be rendered by properly designed window displays and suitably arranged displays of appliances in the store.

In the first place, it must be realized that the first thing that any customer sees as he enters the gas company's office is the window display. These are in reality the eyes of the gas company in which interest or disinterest of the individual may be seen reflected. In other words, the window display is the first point at which the gas customer is either attracted or repelled.

If he sees a well gotten up display, if something in the window excites his interest, if he finds something on show, exhibited in a manner that attracts his interest, then he is encouraged to go further. Then, again, when he enters the store and there sees a well arranged gas exhibit, his interest is accentuated and his frame of mind is brought to such a point that the selling talk of the salesman falls upon receptive ground. Window displays act as a sort of introduction, and every salesman, no matter what kind of merchandise he sells, well knows the value of the preliminary introduction in selling goods.

Furthermore, it must be remembered that the gas company is particularly interested in building up good will among its customers, and not only that, but in gaining their respect and continuing to hold it at all times. If the window display, which, as stated before, is the first thing that the gas customer sees, is simply thrown together in any careless way, arranged haphazardly, just as the spirit moves the window dresser, then the effect produced is likely to be the same. The customer is apt to think that the gas company is a slipshod sort of an organization. He is apt to have but little respect for it, and certainly the task of the salesman to sell a prospective customer, so disposed toward the company, is considerably more difficult than when a favorable first impression has been made.

It is, therefore, again emphasized that the gas companies should give particular attention to their window displays and to the arrangement of appliances in the store. There is no such thing as intuitive knowledge in this respect. Results must be obtained by strict attention to detail and to the effects that are produced by the displays. One thing is sure, and that is, if real attention is given the matter, and if an honest-to-goodness effort is made to get up a good-looking, interesting display, while the results may not be 100 per cent perfect, they will be unquestionably greater than if the display is carelessly arranged, just merely thrown together, with no particular idea in view.

It is not expected that the average gas company can give such intensive study to this matter as some of the large companies, but it is urged that they do not overlook the importance of it and spend thought upon it. The matter is of real importance. It will help in the sale of gas merchandise and gas itself. It is certainly worth while for the gas company to try to arrange its displays in as attractive a manner as possible, so that every passerby will be pleased and so that he will carry away with him a pleasant picture, together with a high respect for the gas company.

GAS WRINKLES

How to Examine the Inside of a Gas Holder While in Operation

It is a desirable thing to be able to examine the inside cup roller of the telescope gas holders. All that is necessary for the accomplishment of this purpose is a small eight-volt lamp that will pass through a three-quarter-inch bolt hole, some double lamp cord and a four-cell storage battery. If there are grip rollers immediately over the cup carriages take two bolts out of a carriage, put the lamp down through one of the bolt holes and look through the other. A hat full of cotton waste will stop the gas from the lamp hole and a piece of glass and India rubber washer from the sight hole. In case there are no carriages on top of the grip, holes will have to be drilled for the lamp for observation. By these simple means the inside rollers and brackets can be examined at leisure.

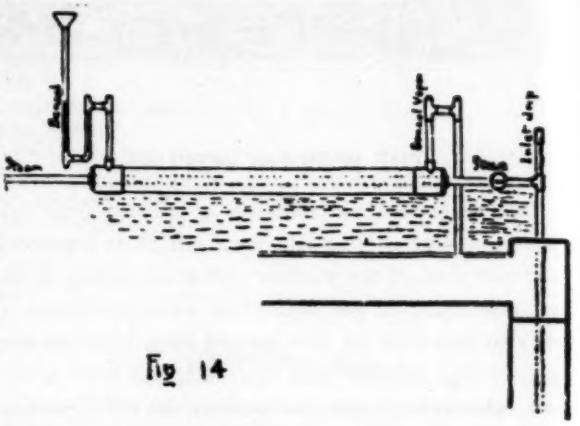
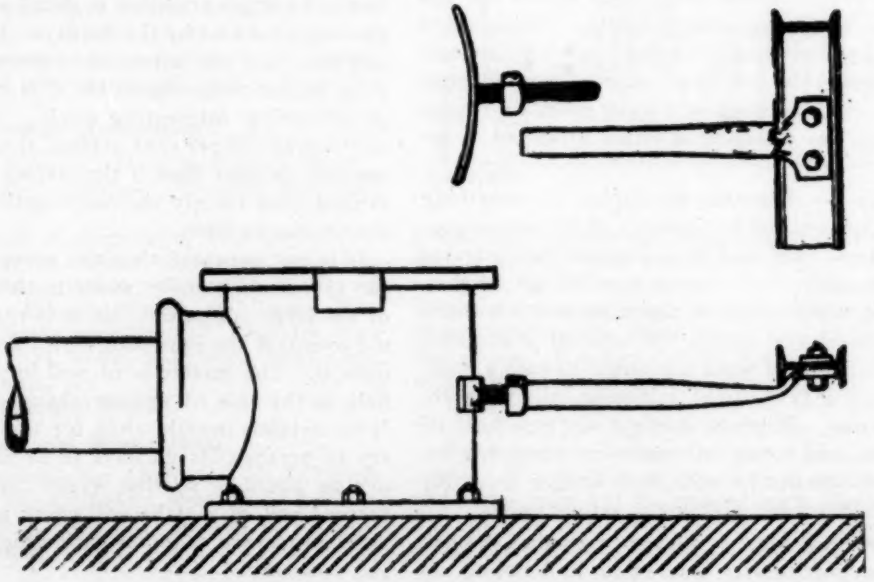


Fig 14

ADJUSTABLE MOUTHPIECE SUPPORT

The accompanying cut shows a simple form of adjustable mouthpieces, or furnace doors, which has commended itself to its users by nearly two years of service. It consists of three parts: First, a 1¼-inch pipe, open at its upper end, and flattened below to attach to a shoe of any convenient form—or in a stage floor retort house, to a beam or plate; second, a T piece formed by welding a 1-inch threaded bolt to a 2x2½x12-inch head properly bent; third, a 1-inch net. The support may be easily made by any good blacksmith, is inexpensive—for it may be formed from scraps otherwise useless—and is readily placed and adjusted.



Catechism of Central Station Gas Engineering in the United States

Installment No. 28

(Continued from last week)

Reactions Between Impurities

THE reactions by which these three impurities combine with each other can, and should, be utilized to the greatest possible extent by washing or scrubbing the gas with the ammoniacal liquor deposited in the hydraulic main and the condensers. In this way the purifiers can be relieved of much work that would otherwise be thrown upon them. The carbonate and sulphide of ammonium formed do not contain definite proportions of the different substances, so no exact chemical reactions can be given.

The excess of sulphuretted hydrogen that cannot be removed by the ammonia may be taken out either by hydrated sesqui-oxide of iron, or ferric oxide, the active material in iron sponge, or mass, or by hydrate of lime, slaked lime. In England a substance called Weldon Mud, a by-product from the manufacture of bleaching powder, the active ingredient in which is manganese dioxide, is also used in the purifiers for the removal of sulphuretted hydrogen, but none of it is employed in this country. Ferric oxide is, as a rule, cheaper than lime for the purpose. Its composition when freshly made is expressed by the formula $Fe_2O_3.3H_2O$, which means that a molecule is composed of two atoms iron, three atoms oxygen and three molecules of water, but under the conditions to which it is exposed in practice it loses water, and its actual composition as employed in gas works is probably that expressed by the formula $Fe_2O_3.H_2O$. The reactions occurring in the purifiers between ferric oxide and sulphuretted hydrogen are expressed by the equations

$Fe_2O_3.H_2O + 3H_2S = Fe_2S_3 + 4H_2O$ and

$Fe_2O_3.H_2O + 3H_2S = 2FeS + S + 4H_2O$

of which the first is the principal one, only 17 per cent to 30 per cent of the sulphuretted hydrogen being taken up according to the second.

Removal of Cyanogen

Ferric oxide will also absorb cyanogen to a certain extent, but if it is desirable to remove this substance in marketable form, it is better to absorb it by scrubbing the gas, before the ammonia and sulphuretted hydrogen are taken out of it, with a concentrated solution of sulphate of iron, $FeSO_4$. The ammonia and sulphuretted hydrogen act on this solution to form sulphide of iron, FeS, and sulphate of ammonia, $(NH_4)_2SO_4$, according to the equation $FeSO_4 + H_2S + 2NH_3 = FeS + (NH_4)_2SO_4$, and then the sulphide of iron acts on the cyanogen and the ammonia to form an insoluble double salt of ferrocyanide and ammonium, thus $2FeS + 6NH_4CN = (NH_4)_2Fe_2(CN)_6 + 2(NH_4)_2S$. This compound of ferrocyanide and ammonium flows from the scrubber as a liquid mud and the cyanogen is obtained by treating it in the proper manner. (American Gas Light Journal, Vol. LXXIII, page 54.

Hydrate of lime, $CaO.H_2O$ or $Ca(HO)_2$, slaked lime, is sometimes employed for the removal of sulphuretted hydrogen, but is, in most cases, more expensive than ferric oxide, and its use should be, as a rule, confined to the removal of carbon dioxide when it is considered advisable to remove this impurity. The reaction between lime and carbon dioxide is expressed by the equation $Ca(HO)_2 + CO_2 = CaCO_3 + H_2O$.

Removal of Carbon Bisulphide

The substance employed for the removal from gas of bisulphide of carbon, CS_2, when a special effort is made to remove this impurity, is the sulphided lime obtained by passing through slaked lime gas containing sulphuretted hydrogen, but no carbon dioxide nor oxygen. The exact composition of the compound of lime and sulphur formed by thus fouling slaked lime is not known, but it is supposed to be either calcium hydrosulphide, $Ca(SH)_2$, or calcium hydroxyhydrosulphide, CaOH.SH. In practice the slaked lime is sulphided after it has been placed in the purifying box, by passing through it in the usual way, and preferably while it is still warm, gas freed from carbon dioxide and oxygen, but containing sulphuretted hydrogen. When the lime is sulphided the valves are so set that the gas enters the box after having been freed from carbon dioxide and sulphuretted hydrogen. In this country it is not usual to make any special effort to remove bisulphide of carbon from illuminating gas, since carburetted water gas and the coal gas made from the majority of the gas coals do not contain any excessive amount of this impurity, and both lime used in the ordinary way and the free sulphur contained in oxide of iron that has been fouled and revivified several times will absorb enough of it to bring the amount left in the gas below the point where its presence would be noticed when the gas is burned.

Chemistry of Purification in Purifying Boxes

149. Explain the chemistry of that part of the process of purification which is carried on in the purifying boxes, including the removal of carbon dioxide and sulphuretted hydrogen by lime and the

removal of sulphuretted hydrogen by oxide of iron. Give as far as you can the reactions occurring in each instance.

Ans. When gas containing carbon dioxide, CO_2, and sulphuretted hydrogen, H_2S, comes into contact with slaked lime or calcic hydrate, $Ca(HO)_2$, both of these substances combine with the lime, forming carbonate and sulphide of lime, $CaCO_3$ and CaS, respectively. This double absorption continues until nearly all of the lime has been acted upon. If after this point has been reached the mixture of carbonate and sulphide of lime is still exposed to the gas, the sulphide will be changed to carbonate by the substitution of carbon dioxide for the sulphur, on account of the affinity between lime and carbon dioxide being stronger than that between lime and sulphur, and as a result of this substitution, sulphuretted hydrogen will be set free to pass forward with the gas. If the lime is used to remove carbon dioxide only, this substitution is allowed to go on until the sulphur has been entirely driven out of the lime, the sulphuretted hydrogen being absorbed by means of oxide of iron in additional purifiers; but if the lime is used for the removal of both carbon dioxide and sulphuretted hydrogen, the first box must be taken off for cleaning and refilling as soon as sulphuretted hydrogen shows at the outlet of the next to the last box in action, at which time there will still be considerable sulphide of lime left in the first box. It is not necessary to test for carbon dioxide in this case, since none can be present as long as the gas is free from sulphuretted hydrogen.

Reactions That Take Place

The reactions occurring between the lime and the impurities and between the carbon dioxide and sulphide of lime are expressed by these equations:

$$Ca(HO)_2 + H_2S = CaS + 2H_2O$$
$$Ca(HO)_2 + CO_2 = CaCO_3 + H_2O$$
$$CaS + CO_2 + H_2O = CaCO_3 + H_2S.$$

When oxide of iron is used for the removal of sulphuretted hydrogen, either alone or in connection with lime used for removing carbon dioxide, as the sulphuretted hydrogen comes in contact with the hydrated ferric oxide or sesquioxide of iron, $Fe_2O_3.H_2O$, in the purifiers, the sulphur of the former unites with the iron and forms iron sulphide, and the hydrogen unites with the oxygen and forms water. At the same time part of the sulphur of the sulphuretted hydrogen is liberated in a free state.

The probable chemical changes are shown by the equations:

$$Fe_2O_3.H_2O + 3H_2S = Fe_2S_3 + 4H_2O \text{ and}$$
$$Fe_2O_3.H_2O + 3H_2S = 2FeS + S + 4H_2O.$$

It is supposed that from 17 per cent to 30 per cent of the sulphuretted hydrogen absorbed by the oxide is absorbed according to the second equation, and the rest according to the first equation.

Changes in "Foul Iron Oxide" on Exposure to Air.

150. What change occurs in foul "iron oxide" when it is exposed to the atmosphere, after use in the boxes? Give a general answer, and then give the chemistry of the operation as far as you can.

Ans. After "iron oxide" has been fouled it is exposed to the air. The iron of the iron sulphide unites with the oxygen of the air, and with the water that is present in the shape of moisture in the mass and in the atmosphere and again forms ferric oxide, the sulphur being liberated in the free state.

Omitting the moisture, the probable chemical changes are shown by these equations:

$$2Fe_2S_3 + 3O_2 = 2Fe_2O_3 + 3S_2$$
$$12FeS + 9O_2 = 6Fe_2O_3 + 6S_2$$

Effect of Heat on Chemical Reactions in Purifiers

151. What is the influence of heat upon the chemical reactions that occur in the purifiers, and what bearing does this influence have upon the questions of the heating of purifying houses, revivifying sheds and lime rooms?

Ans. The chemical reactions occurring in the purifiers between lime or ferric oxide and the sulphuretted hydrogen (and in the case of lime the carbon dioxide also) in the gas, are rendered more rapid and complete by heat. It has been found that at temperatures below 32 deg. F. both lime and ferric oxide are practically inactive with reference to sulphuretted hydrogen, and that as the temperature increases, more and more of the impurities are absorbed until at temperatures of 100 deg. F. to 120 deg. F. the action becomes as complete as it can be made under working conditions. It follows from this, that to secure good results in purification, purifying houses, lime rooms and revivifying sheds should always be maintained at a temperature not lower than 60 deg. F., and further advantage may be derived from heating the gas itself as it enters the purifiers to a temperature of from 100 deg. F. to 120 deg. F.

Use of Lime and Oxide of Iron for Purification

152. What are the respective arguments in favor of the use of lime and of oxide of iron for the purification of illuminating gas?

Ans. It is argued in favor of the use of lime for purification, either alone or in combination with iron oxide, that as it removes from the gas a larger portion of the sulphur compounds than is taken out by oxide and all the carbon dioxide, for which the oxide has no affinity, the resulting gas is purer and of higher illuminating value than the same gas would be if purified by oxide alone, and will, moreover, burn with a whiter and more brilliant flame than can be obtained from a gas containing carbon dioxide even though the loss of illuminating power due to the presence of the carbon dioxide is made up by the use of a larger quantity of enricher. These advantages it is claimed are fully worth the extra cost of lime purification over that of oxide purification even when lime is comparatively expensive.

The advocates of the use of oxide of iron alone contend on the other hand that most of the gas coal used in America yields a gas containing such a small quantity of sulphur compounds, other than sulphuretted hydrogen, that there is no necessity for the

removal of any portion of them, and that as usually employed in this country lime is no more effective than oxide in removing such compounds from gas. (Water gas contains even smaller amounts of thes sulphur compounds than coal gas.) In contradiction to the statement that owing to the detrimental effect of the carbon dioxide, gas purified with oxide will have a lower illuminating value than the same gas would have had if purified with lime, it is claimed that careful comparisons of manufacturing results have shown that the change from lime purification to oxide purification does not cause any reduction in the illuminating value of the gas, other things being equal, owing to the fact that, as shown by analysis, the gas purified by oxide will contain a larger percentage of heavy hydrocarbons than similar gas purified by lime, and this extra amount of illuminants counterbalances the detrimental effect of the carbon dioxide.

Effect of Carbon Dioxide on Gas

It is also claimed that there is no noticeable difference between the flame produced by burning a gas containing the comparatively small percentage of carbon dioxide that would be found in a well made gas purified by iron oxide and that produced by a gas entirely free from carbon dioxide, the rate of combustion and the illuminating value of the gas being the same in both cases, and that, even if the illuminating value of gas purified by oxide, should be slightly less than it would be if the carbon dioxide were removed by lime purification, the difference is so small that in most cases the cost of extra enrichment is much less than the extra cost of lime purification.

In other words, the advocates of purification by iron oxide alone claim that there is practically no difference between the gas purified by lime and that purified by oxide, except that possibly the latter may show a slight loss in illuminating value, which can be made up at a cost much smaller than that of lime purification.

The use of a coal containing a large percentage of sulphur, and the existence of very stringent regulations as to the amount of sulphur allowed in the gas, may make the use of lime necessary for the removal of the sulphur compounds from the gas.

Preparing Lime for Purifying Gas

153. How would you prepare lime for use in purifying gas?

Ans. Schilling, in the 1858 edition, page 75, gives the following directions:

"The degree of moisture is of the greatest importance. In many works the rule is to slake the lime in such a manner that it will neither fall into powder nor adhere to the fingers when compressed. * * * * In this condition, however, the lime is too dry; it causes much pressure. It is hardly possible to indicate precisely the quantity of water required for a given weight of lime, but there will be little danger of error in operating as follows: Spread the quicklime over a stone floor, and surround it with a slight dyke of slaked lime, to prevent the water from running off; then slake it with water thrown upon the mass. It is then to be well mixed and turned over, until the whole forms a thick and homogeneous mass. It must then be thrown up in a heap, and left undisturbed until the next day, when it must be again worked over and the lumps broken."

Improved Schilling Method

Theobald Forstall later improved upon the Schilling method, and in a paper read before the American Gas Light Association, described his improvement in the following language:

"A simple and effective means of gauging the proper degree of moisture, and securing its uniformity throughout the whole charge of lime operated upon, is to pass the slaked lime through a wire screen with an open mesh of one square inch area placed at an angle of 70 deg. with the floor. This screening reduces the lumps into granular pellets of irregular form and size, the largest of which do not exceed the bulk of a small hickory nut. The proper degree of moisture is that beyond which any excess would cause the 'dough' to adhere to the screen instead of breaking through. Slight variations of moisture, in different portions of the charge, are corrected by the thorough mingling of the whole in the screening. The pellets do not adhere to one another spontaneously; they can be shoveled into barrows and reshoveled into purifiers, without losing their independence; but the slightest compression and working in the hand will resolve them immediately into adhesive putty."

The Trustees recommend to the students that they read Mr. Forstall's paper, which may be found in the Proceedings of the American Gas Light Association for 1875; in the Journal of Gas Lighting, Vol. XXVI, page 364; or in King's Treatise, Vol. 1, page 425.

Making Iron Oxide for Purifying Gas

154. Describe some method of making iron oxide, to be used for the removal of sulphuretted hydrogen from gas during its purification.

Ans. The iron oxide, or sponge as it is sometimes called, which is used for removing sulphuretted hydrogen from gas, is prepared by thoroughly oxidizing or rusting iron in the shape of borings and mixing it with planer chips so as to make the material more permeable by the gas. To produce a good material, the iron must be present in sufficient quantity, must be thoroughly oxidized into the hydrated sesquioxide and must be uniformly distributed throughout the planer chips.

The iron should be in the shape of cast iron borings free from oil, the finer the better, and should be used in the proportion of from 20 lbs. to 25 lbs. to each bushel of planer chips. The chips should be clean and free from dust. To prepare the material, the desired number of bushels of planer chips are measured out and spread to a depth of about 18 in. on a floor preferably paved with brick or cement, and are then

sprinkled with water, turned, again sprinkled and turned, and so on until the whole mass is uniformly wet, but not soggy. This wetting of the chips is for the purpose of causing the particles of iron to adhere to them. An amount of iron borings equal to 5 lbs. per bushel of chips used is then weighed out, spread evenly over the top of the wet chips and mixed with them by turning the mass and wetting it while it is being turned. This operation is repeated until the whole amount of iron to be used has been added and is mixed evenly throughout the mass, which on the last turning is brought up to a depth of 24 inches.

Oxidation of Iron

The iron by this time should have begun to oxidize rapidly, and the heat produced by this oxidation will cause the mass to grow quite hot. To prevent the temperature from becoming excessive, as well as to expose fresh surfaces of the iron to the oxidizing influences of the water and the air, the mass must be turned and wet at comparatively short intervals. It may at first have to be turned every ten or twelve hours, but as the oxidation of the iron becomes more complete, the heating will not be as rapid and the intervals can be made longer. In any case these intervals must be sufficiently short to keep the mass damp and prevent any dehydration of the oxide by overheating and drying. The wetting and turning must be continued until all the iron is thoroughly oxidized, the attainment of this condition being shown by the cooling down of the mass, by the changing of the color to a reddish brown, and by the absence of any particles of unoxidized iron as determined by a close inspection of the mass. During the several turnings care must be taken to break up all the lumps found, since the iron in the interior of such lumps cannot be acted upon by the air and the water. When the oxidation is complete, the chips should all be covered with oxide and should not adhere to each other.

Wetting Chips

Brine and ammoniacal liquor are sometimes used for wetting the chips and the iron instead of water, the oxidation of the iron being hastened by their use. Sawdust is also sometimes used in place of planer chips, the argument in its favor being that there is less loss of oxide by its blowing away as dust during the handling of the material when in use than occurs when the chips are employed. The oxide made with chips does not, however, pack as tightly in the purifiers as does that made with sawdust, and therefore does not throw as much pressure, and the majority of engineers prefer oxide made with chips to that made with sawdust.

Reactions and Weights of Reagents Required

155. From the reactions between slaked lime, $Ca(Ho)_2$ or $CaO.H_2O$, and carbon dioxide, CO_2, and between ferric oxide, $Fe_2O_3.H_2O$, and sulphuretted hydrogen, H_2S, as given in the answer to question No. 149, calculate the weight of carbon dioxide that can theoretically be absorbed by one pound of lime and the weight of sulphuretted hydrogen that can theoretically be absorbed by one pound of ferric oxide. Give your calculations.

Ans. The equation according to which slaked lime combines with carbon dioxide is as follows:

$$Ca(HO)_2 + CO_2 = Ca\,CO_3 + H_2O$$

The molecular weight of $Ca(HO)_2$ is 74; the molecular weight of CO_2 is 44. Therefore, 74 parts by weight of $Ca(HO)_2$ combine with 44 parts by weight of CO_2.

Then 1 lb. of slaked lime will combine with 0.5946 lb. of carbon dioxide according to the proportion

$$74 : 44 :: 1 : x = 0.5946$$

The equations according to which $Fe_2O_3.H_2O$ combines with H_2S are as follows:

$$Fe_2O_3.H_2O + 3H_2S = Fe_2S_3 + 4H_2O$$

$$Fe_2O_3.H_2O + 3H_2S = 2\,Fe\,S + 4H_2O + S$$

The molecular weight of $Fe_2O_3.H_2O$ is 178; 3 times the molecular weight of H_2S is 102.

Then in a manner analogous to that above we have

$$178 : 102 :: 1 : x = 0.573 \text{ lb.}$$

Gas Purified by Given Quantity of Iron Oxide

156. What is the maximum amount of gas containing 320 grains of sulphuretted hydrogen, H_2S, per 100 cubic feet that can theoretically be purified by a bushel of purifying material containing thirty pounds of hydrated sesquioxide of iron, $Fe_2O_3.H_2O$? It is assumed that no oxygen is present in the gas.

Ans. The answer to question No. 155 shows that each pound of sesquioxide of iron, $Fe_2O_3.H_2O$, will combine with 0.573 lb. of sulphuretted hydrogen, H_2S. Therefore, the thirty pounds of oxide contained in a bushel of the purifying material specified can theoretically absorb $30 \times 0.573 = 17.19$ lb. of sulphuretted hydrogen. Since the gas contains 320 grains of sulphuretted hydrogen per 100 cubic feet, it will contain 3,200 grains, or 0.46 lb. (1 pound equals 7,000 grains) per 1,000 cubic feet. $17.19 \div 0.46 = 37.37$, hence a bushel of purifying material containing thirty pounds of hydrated sesquioxide of iron will theoretically purify, during one exposure, 37,370 cubic feet of gas which contains 320 grains of sulphuretted hydrogen per 100 cubic feet.

Obviously, the amount of gas that can be purified will vary according to the quantity of H_2S in the gas, and also according to the weight of $Fe_2O_3.H_2O$ contained in a bushel of material.

It is also possible by admitting oxygen with the gas and thus securing a continuous partial revivification, to purify more gas to an exposure than is indicated by the method of calculation given above. Unless oxygen is supplied, however, the duty actually obtained in practice from any material will always be less than the theoretical amount obtained by calculation, as it is impossible, under working conditions, to thoroughly saturate with H_2S all the $Fe_2O_3.H_2O$ in the material.

(Twenty-ninth Installment Next Week)

A. G. A. Distribution Committee Meets In Toronto

H. W. Hartman

Secretary, Technical Section

THIRTY-THREE distribution executives from gas companies throughout the United States and Canada met in Toronto, June 23 and 24, to discuss present-day distribution problems, and this two-day gathering proceeded to break all previous records for representative attendance, enthusiasm and results.

Mr. J. D. von Maur, engineer of distribution of the Consumers Gas Company of Toronto when he accepted the chairmanship of the A. G. A. committee on distribution, decided upon a radical change from the usual method of committee organization. Instead of asking a limited number of members whether they would serve on the committee, he notified forty representatives of the largest companies that they **were** members of the committee. It wasn't necessary to accept appointment—"just get busy and summarize the practice in your company on the problems submitted." All work was handled by correspondence and no meetings were called until the final meeting in Toronto.

Mr. von Maur's methods were unique—even somewhat abrupt. But nothing succeeds like success and the "old timers" in the committee membership were a unit in declaring the Toronto meeting the very best in their association experience.

Mr. George Hold, who had travelled a long way from the Pacific Gas & Electric Company of San Francisco, was overheard telling Mr. Weinmeister of Atlanta, Georgia, that he wouldn't have missed it for twice the trip, and Mr. Weinmeister confessed that he had wired his company all about the meeting because it took too long to send a letter.

Representatives from All Over the Country

Chicago, Milwaukee, St. Louis, Des Moines, and Lansing, Michigan, represented the Middle West; Toronto and Montreal, the Dominion; Boston and Providence the New England States, and Newark, Jersey City, Washington, D. C., Syracuse, Rochester, Buffalo, Pittsburgh, Philadelphia and Chester, Pa., the Eastern states.

Mr. Arthur Hewitt opened the first day's session with a "Welcome to Toronto" that made everybody feel at home and "glad he came." Then Mr. von Maur took the chair and the meeting got down to business.

He explained that the scope of the work had purposely not been confined to one or two phases of the distribution field, but was designed to summarize common distribution practice and to crystallize the experience of the best engineers on the more important problems that were today confronting the distribution departments of gas companies.

Problems Discussed

Among the problems discussed by the meeting were:

1. House heating from the distribution standpoint. The object of this question is to assist the house heating committee in arriving at some conclusions as to the conditions under which gas companies should undertake the house heating business.
2. When, and under what conditions, should demand-limiting meters or devices be used?
3. Automatic distance pressure control? Describe

system in use, and condition under which its use is advisable.

4. What are the advantages and disadvantages of spiral cast iron pipe made by the centrifugal process, and to what extent has it been used?

5. Under what condition is it advisable to use joints of the Dresser type with wrought iron or steel pipe?

(a) Under what conditions is it advisable to use joints of the Dresser type with cast iron pipe?

(b) If plain end cast iron pipes are used with joints of the Dresser type, should the pipe be made by the centrifugal process or by the old process?

6. What are the advantages and disadvantages of laying gas mains in parkways, and under what conditions should they be laid in the pavement between curbs?

7. Under what conditions does it pay to use excavation machinery for the laying of gas mains?

(a) Describe type of machine used and give results obtained.

(b) Can machinery be used advantageously for filling in trenches??

Relative Life of Steel and Cast Iron Pipe

8. What is the relative life of steel and wrought iron pipe laid under average conditions?

(a) What life can be expected from steel and wrought iron mains laid under average conditions?

(b) What is the relative leakage that can be expected with steel, wrought iron and cast iron mains laid according to best ideas of modern practice?

(c) What kind of pipe coverings are available, and how much additional life can be expected from the use of such covering on wrought iron or steel pipe?

9. The relative value of cast iron, wrought iron or steel pipe for high pressure distribution, the limiting conditions under which they should be used, and recommendations as to when it is best to use screw joints, ox-welded or electric welded joints in connection with wrought iron or steel pipe.

10. Under what conditions should stop cocks be placed on service pipes?

11. Describe the process of cleaning out distribution mains by any successful method you may have used.

The Question of Electrolysis

12. Are gas companies suffering from the destruction of service and main pipes by electrolysis, and what is being done to remedy the situation?

13. Description of pumping units used for the pushing or compressing of gas for distribution purposes?

14. For what use has compressed air been found an advantage in distribution work?

15. Safe rules to be observed in the use of compressed air for cleaning out house pipes and services.

16. Methods and equipment for the instruction of distribution employees.

17. Methods of removing different forms of stoppages from gas mains.

18. Types of high-pressure governor pits, governors and equipment.

19. What should be the limits of pressure at the outlet of the customer's meter, and what limits in variation of pressure should be allowed?

Meter Shop Practice

20. Meter shop practice. It would be very interesting if every company having a meter repair shop would give a short description of his meter shop practice. For instance, a number of companies have recently turned to the use of yarn treated with tallow only.

What material is used for stuffing boxes?

What kind of yarn?

How long are diaphragms seasoned before being put in meters?

What pressure tests are repaired meters subjected to before being accepted?

Is anyone dipping or spraying meters? etc., etc.

21. Consideration of the adaption of natural gas distribution systems for the distribution of artificial gas in situations where the supply of natural gas has been exhausted.

22. Where should drips be located on high pressure mains where the pressure exceeds 10 pounds?

23. Experience with rotary meters of the Connersville type for industrial purposes.

Troubles With Meters

24. Causes for meters becoming very slow, very fast or D. R.

25. Has the double click or check in meters proven to be an advantage?

26. What packing has proven best for use in lead and cement pipe joints?

27. Causes of stuck meters.

28. Should commissions allow meters to be set which are plus or minus 3 per cent, provided average of all meters set are plus or minus 1 per cent?

29. In cities 400,000 or over, should there be at least one shop in addition to the central shop?

30. How many fitters' automobile accidents per car in service took place during 1923? In each answer indicate whether transportation facilities are directly under the supervision of distribution superintendent, or under some other department head.

31. Give your ideas of what you consider a fair weekly wage of various types of employees, foremen and superintendent,s under 1924 probable conditions in your city.

32. What material do you use for service pipe—wrought iron, steel, galvanized, etc.? Describe the covering you use.

32a. What advantages are there in the use of galvanized pipe?

Distribution Troubles

33. What additional distribution troubles have been encountered since gas having a lower B.t.u. standard has been distributed, and how are such troubles taken care of?

34. Have any old troubles diminished or disappeared since a lower B.t.u. gas has been distributed?

35. Where high pressure gas is distributed, are any new distribution troubles encountered, or have any old troubles either increased or diminished?

36. State under this number any new wrinkles, or any new ideas which may be of assistance to the distribution end of the gas industry.

37. Set down under this number any distribution questions on which you would like further information.

38. Should a concerted effort be made in the gas industry to replace the present meter djals with straight reading meter dials?

39. There is a crying need in the gas industry for a simple and inexpensive device that will indicate the rate of flow of gas in mains. The element of demand is, I am glad to say, coming more and more into the gas industry. The absence of any inexpensive portable and easily installed device for measuring demand is a drawback. Perhaps your technical section might develop something for us.

Entertainment of Visitors

After the first morning session the visiting delegates were entertained at a luncheon at the National Club of Toronto. The hospitable efforts of Mr. Hewitt, Mr. Armstrong and other members of the Toronto company, convinced everyone that Toronto was the very best place for settling distribution problems that could possibly have been selected.

Reconvening in the afternoon, the members attacked their problems with renewed vigor. In addition to the regular program, Mr. Ralph Hayward of the Connelly Iron Sponge and Governor Company unburdened his soul on the subject of valves and governors, and Mr. H. S. McAdam of Toronto initiated the members into the mysteries of what is necessary to insure good meter diaphragms. Mr. Powell of the Milwaukee Company had ideas of his own on this last subject, which resulted in a special committee being appointed.

Adjourning at 5 o'clock, the members were taken in automobiles through the many attractive sections of Toronto, including the permanent exposition buildings. A beautiful forty-mile drive along the lake front was followed with a dinner to the members in Burlington. Everybody got home to Toronto safe and sound, with no members reported missing—which we imagine establishes another record.

Joints—or, more specifically, pipe joints—was the chief topic of the second day's session. Mr. Redington of the National Tube Company read a most interesting discussion of corrosion and pipe coverings which had been prepared for presentation by Mr. Frank H. Speller of that company. The morning session adjourned at 11 o'clock and the members were taken in machines to inspect the laying of a line of six-inch de Lavaud centrifugal cast iron pipe with bronze welded joints. The last weld was made for the members' inspection and 180 feet of the welded pipe lowered into the ditch and pressure test applied.

From this job the members were driven to the plant of the National Iron Corporation, where a dinner was served by the management. After dinner the members were taken on a tour of inspection of the plant and saw the actual manufacture of the centrifugal cast iron pipe in 6-inch and 12-inch sizes.

From the plant the members were taken to an exhibition of the film of the Oxweld Acetylene Company, illustrating the bronze welding of a line of centrifugal cast iron pipe being laid at Bay Shore, L. I.

Before final adjournment, Mr. Bates, of the Chicago company, moved a rising vote of thanks and appreciation to the officials and staff of the Consumers Gas Company for the splendid hospitality extended to the committee. The enthusiasm with which the vote was given left no doubt that Toronto and its hospitality will long remain a pleasant memory to the members who were fortunate enough to be in attendance.

SOME GAS BUSINESS FACTS

J. B. Dillon

The Public Service Company of Colorado in issuing its gas bills for May-June period, payable June 26, have illustrated them with a silhouette, the color in bronze, the likeness of a bucking broncho and his rider, the upper caption "Cheyenne Invites You" and under "horsie's" hoofs: "To Frontier Days, July 22-23-24-25."

That is a real public service, because Frontier Days in Cheyenne is looked forward to by people all over the United States, and any who attend these outdoor sports get the "thrill that comes once in a lifetime."

The Mutual Benefit Canvass

The Public Service Company of Colorado has mailed to all gas users of Denver an illustrated folder: "A Letter to Our Customers." It is narrated that the stock sold its customers last November at $93.50 a share is now worth $96 and is likely to go higher. The yield is 7.29 per cent. Stress is laid on the importance of the acquisition of the Colorado Power Company, another reason why investors should buy more, and then figures are given showing the difference between getting 7.29 per cent for money from the gas company and placing it in the bank at 4 per cent.

This is surely a mutual benefit canvass because the gas company in helping themselves is helping every man or woman who buys its stock, and the investment is as safe—yes, safer, than many banks—because folks must have gas and electricity and a real gas company cannot become insolvent.

Elimination of Condensation on Gas Appliance Vent Pipes

The use of internal insulation

Charles W. Geiger

THE Pacific Coast, due to its climatic conditions, has developed the design and use of gas furnaces for home heating to their present highly efficient stage, and is, therefore, being closely watched by other sections of the country to whom the use of such a clean and economical fuel must naturally appeal. There has been one objection, however, to the general adaptability of gas as a method of heating homes, and that objection was that the ordinary galvanized vent pipes on such appliances did not last long, due to the corrosive action of the products of combustion.

When gas is burned, one of the products of combustion is water vapor. In this vapor is a small amount of sulphurous acid fumes. These vapors leave the furnace at a temperature above the condensation point and therefore do not attack the metal, but after they have traveled through a long

run of uninsulated vent pipe their temperature drops below the boiling point and the result is that they condense to a liquid.

This liquid, being a dilute solution of sulphurous acid, readily attacks the galvanized iron vent pipe and eats it away in time. Various methods were employed in the past to eliminate this difficulty. The inside of the galvanized vent pipe was coated with asphalt or other preparations; copper pipe was used —but to no avail. Condensation was still present, and while such improvements were more lasting, the cooling of the gases impaired, if not destroyed, the draft.

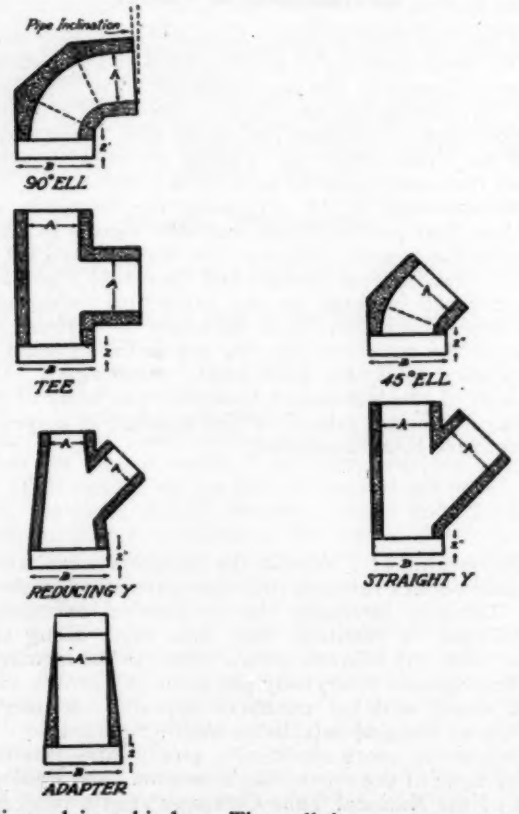
Need for Efficiency in the Gas Furnace

It should be made clear that the modern gas furnace must necessarily be very efficient in order to compete with other fuels. In other words, the stack temperature of gas furnaces must be lower than that of furnaces using other fuels. If the stack temperature of gas furnaces is exceedingly high, there is no condensation to speak of, but the cost of operation is excessive and the efficiency low. If the stack temperature is very low, the efficiency of the furnace is high, but there is excessive condensation.

It was thought that if the inside of a galvanized vent pipe were properly insulated to eliminate the heat lost by radiation through the walls of the pipe, the temperature of the exhaust gases would be maintained throughout the length of vent pipe, the vapors would be discharged to the atmosphere above the condensation point, and the vent pipe would last indefinitely. An experimental test was therefore made, using an ordinary galvanized iron pipe lined with a one-inch wall of a heat insulator. The results were an instant success.

Test With Internal Insulation

The insulating material is of uncommon interest. It is composed of millions of small air bubbles imprisoned in a binder. The cellular structure of the material is the result of an effervescent action in a liquid mixture, so timed that it occurs just before



the mixture sets, in a manner similar to plaster of paris. Each minute air bubble is separate from the other, giving an ideal insulator. The insulator is cast in the flue pipe, using a core to form the complete mold. The small amount of solid matter in the material consists of calcium sulphate, which is insoluble in water. Furthermore, being a sulphate, it is not affected by the sulphurous acid in the exhaust gas.

This flue pipe is being adopted throughout the Pacific Coast and its use is endorsed by the prominent gas companies who have thoroughly tested it. In addition to eliminating all corrosive action of the fumes, its use greatly improves the draft and minimizes the possibility of smothered flames when units are first lighted from cold.

GAS HOUSE TALES

(Continued from page 636)

is electrified, while the gas man says, "cook with gas," or "buy a little heater for that cold day," or maybe, "why worry with hot water troubles—heat your water on the run," and rests on his oars. He does not say, "Pipe your home from cellar to attic for gas service," and when the Smiths come in and harp on the extravagance of ten cents worth of gas a day the gas man agrees with him that he is justified, knowing that he uses gas service for but one or two purposes, while the electric man makes him feel that he is not doing his duty by his family because there are some electric appliances on the market that he is not using. Furthermore, the gas man looks at Smith's bill from a dollar and cents angle, what gas service costs, while the electric man views it from what he saves the Smiths in labor and time, knowing that on "the what it will do for you" basis his service is cheap at any price.

The whole thing reverts back to the old idea of selling will sell. Try it. Sell your service and sell more appliances to be employed in using your service and you will find that the Smiths will see your point, for Americans want to pay for service that serves, and that saves them time and labor.

"PUBLIC SERVANTS OF THE NATION"

The above is the heading of an advertisement, in two colors, of the General Gas Light Company, Kalamazoo, Mich., appearing in the July 12 issue of the Saturday Evening Post, in which they state: "Of all the public utilities, none are more essential to the welfare of the nation than the great natural and manufacturing gas companies. Gas service is a special need of home life. The producing companies deserve your support and appreciation. They are in the best sense of the term 'Public Servants of the Nation.'"

Advertisements of this kind in so widely a circulated medium as the Saturday Evening Post are bound to produce a more appreciative understanding in the public mind as to the service the gas companies are rendering 24 hours a day to nearly one-half the population of the United States.

RECOMMENDS PUBLIC SERVICE SECURITIES

Discrimination against gas and other public service securities, whether it still exists, is a "relic of the days when only Government and municipal bonds and railroad issues were considered good enough for the average savings bank to invest in," says George T. Hughes, investment expert of the New York Evening World.

"Public utility bonds as a class rank next to those of railroads as investments,' says Mr. Hughes. "In some respects the public utility bonds have the advantage. Both the railroads and the public utilities are subject to regulation by the state, but in recent years this regulation has been more intelligent and more fair to the companies in the case of the utilities than with the rails.

"For one thing, the utilities have been wiser in their handling of their public relations than have the railroads, and the customer ownership campaigns have been a great success in furthering these good relations.

"Like the railroads, the utilities furnish an absolutely essential service. We cannot get along without telephones, gas or electric light. Every year the demand for this kind of service increases."

The spread of the customer ownership idea, according to Mr. Hughes, is one of the most encouraging developments of the times in the investment business.

"The customer owner," he says, "has been able to obtain a sound security with reasonable return and one with the progress of which he is able to keep in close touch. The amount of money which can be raised in this way is far beyond the estimates made by those who first suggested the plan.

"It has also resulted in keeping for the community the capital which might otherwise have been dissipated in buying fraudulent promotion stocks. It has met the criticism that opportunities for the safe investment of small sums have been lacking because it was too expensive for investment bankers to cater to the investor who had only $100 spare capital. The public utility can well afford this expense in return for the co-operation they secure from their customers."

Mr. Hughes also makes the important point that "railroad bonds of the savings bank class bring an artificially high price in many instances, making it still more advantageous for the individual investor to select utilities."

CHICAGO USES GAS ENOUGH TO SUPPLY SCOTLAND AND IRELAND

The people of Chicago used almost as much gas in 1923 as did the people in both Scotland and Ireland, according to statistics compiled by the American Gas Association.

Chicago required 29,791,111,000 cubic feet of gas for domestic and industrial use; Scotland, 23,514,000,000 cubic feet, and Ireland, 6,906,000,000 cubic feet.

Chicago exceeded the British Isles in gas consumption per consumer, with 39,721 cubic feet per user for the year.

The figures for England and Wales are 33,529 cubic feet; for Scotland 25,618 cubic feet; for Ireland 32,541 and for the British Isles 32,500 cubic feet.

Current Market Prices

COALS (By Courtesy of Coal Age)

A. Bituminous.

(Spot prices, F. O. B., mines, net tons).

High Volatile, Eastern	Market	Price
Pool 54-64 (Gas Standard)	New York	$1.40 to $1.65
Pittsburgh screened gas	Pittsburgh	2.30 to 2.50
Pittsburgh gas, mine run	Pittsburgh	2.00 to 2.25
Kanawha lump	Columbus	(*)
Kanawha mine run	Columbus	(*)
West Virginia lump	Cincinnati	2.00 to 2.25
W. Virginia gas mine run	Cincinnati	1.25 to 1.50
Midwest		
Indiana 4th vein lump	Chicago	2.75 to 3.00
Indiana 4th vein mine run	Chicago	2.25 to 2.50
South and Southwest		
Big Seam lump	Birmingham	2.90 to 3.10
Big Seam mine run	Birmingham	1.75 to 2.10
Southeast Kentucky lump	Louisville	2.00 to 2.25
Southeast Kentucky mine run	Louisville	1.25 to 1.75

B. Anthracite.

(Spot prices F. O. B. mines, gross tons),

Market	Freight rates	Independent	Company
Egg New York	$2.34	$8.75 to $9.25	$8.45 to $8.85
Egg Philadelphia	2.39	8.80 to 9.60	8.80 to 8.85
Egg Chicago (net tons)	5.06	7.86 to 8.00	7.83 to 7.90

COKE (By Courtesy of Iron Trade Review).

Connellsville, furnace	$3.00 to $3.25
Wise County, furnace	3.75 to 4.50
Alabama, furnace	5.00 to 5.50
Foundry, Newark, N. J., del.	10.41
Foundry, Chicago, ovens	12.50
Foundry, Boston, delivered	12.00
Foundry, St. Louis	12.00
Foundry, Granite City, Ill.	9.00 to 9.50
Foundry, Alabama	5.50 to 6.00

PETROLEUM (By Courtesy of Oil, Paint & Drug Reporter)

(Prices at wells, per bbl.)

Pennsylvania—Ohio—West Virginia.	
Cabell, West Virginia	1.70
Corning, Ohio	1.90
Lima	2.28
Pennsylvania	3.25 to 3.75
Wooster, Ohio	2.00
Indiana—Illinois.	
Illinois	2.07
Indiana	2.08
Oklahoma—Kansas.	
Healdton	.90
Mid-continent (low gravity)	.90 to 1.05

* No quotation, due to strike.

Gulf Coast.

Gulf Coast, Grade A	$2.00
Gulf Coast, Grade B	1.70

GAS OILS.

Gas Oil, Bayonne, bulk gal.	5¼ to 6c
Gas Oil (32-36) Illinois-Indiana,	4.93 to 5.08
Gas Oil (32-36) Oklahoma, gal.	2⅝ to 2¾c
Gas Oil (32-36) Gulf Coast, gal	4¾ to 5 c

PIPE AND FITTINGS—CAST IRON GAS PIPE.

(By Courtesy Iron Trade Review.)

Four-inch, Chicago	$64.20
Six-inch and over, Chicago	60.20
Four-inch, Birmingham	57.00 to 58.00
Six-inch and over, Birmingham	53.00 to 54.00
Four-inch, New York	70.60 to 71.60
Six-inch and over, New York	65.60 to 66.60
Standard fittings, Birmingham, base	115.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20.

BY-PRODUCTS

(By Courtesy of Oil, Paint and Drug

Ammonia aqua, 16 deg. drums lb.	5 to 5¼c
Ammonia aqua, 20 deg. drums lb.	6¼ to 6½c
Ammonia aqua, 26 deg. drums lb.	6½ to 7 c
Ammonia squa, anhydrous cylinder, lb.	30 to 36 c
Ammonium sulphate, bulk F. O. B. Works, per 100 lbs.	$2.55 to $2.60
Potash prussiate, yellow casks, lb.	18 to 18½c
Potash prussiate, red casks, lb.	37 to 40 c
Soda prussiate, yellow casks,	10½c
Soda sulphocyanide, barrels, lb.	45 to 55 c

COAL TAR BASIC PRODUCTS.

(By Courtesy of Oil, Paint and Drug Reporter)

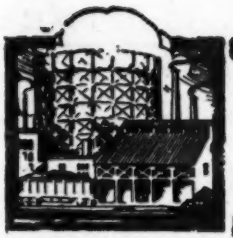
Benzol C. P. tanks, works, gal.	24 to 25c
Benzol, drums, gal.	30c
Benzol, 90% tanks, works, gal.	23c
Benzol, 90% drums, gal.	28c
Napthalene, flake, barrels, lb.	5 to 5¼c
Napthalene, dyestuff bags, lb.	4½ to 5 c
Solvent Naphtha, water white works, gal.	24 to 25c
Solvent Naphtha, drums, works, gal.	29 to 30c
Toluene, C. P. tanks, works, gal.	31c
Toluene C. P. drums, works, gal.	36c

Sulphate of Ammonia

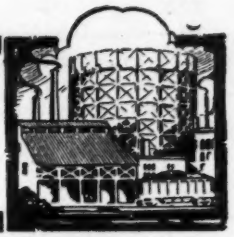
There was a dull market noted, both for domestic distribution and for export, and the market was easy. Stocks were available at $2.55 to $2.60 per 100 pounds in bulk, f.o.b. works, the lower price representing a decline of 5 cents per 100 pounds from the previous week's quotations.

Gas Oil

Gas oil was meeting with but a routine call last week, and was somewhat inclined to easiness. Refiners were quoting at 5⅛c to 6c per gallon, f.o.b. Bayonne. Reports of 141 inland refineries, with a daily still capacity of 498,850 barrels, as returned to the Western Petroleum Refiners Association, indicate that total production of gas and fuel oil for the week ended June 21 at these refineries was 35,830,022 gallons, an increase of 1,780,102 gallons over the output for the preceding week. Stocks of gas and fuel oils held by the refineries on June 21 were reported as 103,675,216 gallons, an increase of 2,075,986 gallons over June 14 holdings.



NEWS OF THE GAS INDUSTRY



Program of the Summer Sales Conference

The following business program has been arranged for the summer conference of managers and sales executives at Millbrook Inn, Millbrook, N. Y., during the first two weeks in August:

Address of welcome—T. R. Beal, president Central Hudson Gas & Electric Co., Poughkeepsie, N. Y.

Effective Direct Advertising and House Organs—Robert E. Ramsay, vice-president James F. Newcomb & Co., Inc., New York.

The Proper Use of Newspaper Space for Advertising—T. H. Moore, associate director Bureau of Advertising, American Newspaper Publishers Association, New York.

What Can Be Done to Capitalize Your Window Display Space—Morris L. Beard, executive of Colgate & Co., New York.

A New Note in Business Administration—Dr. Lee Galloway, Ronald Press, New York.

Customer Ownership and Selling Utility Securities to Your Public—Percy Whiting, Henry L. Doherty & Co., New York.

New Business Development and Sales Stimulation—R. J. Canniff, sales promotion department, Central Hudson Gas & Electric Co., Poughkeepsie, N. Y.

Compensation for Sales Representatives — Thos. F. Kennedy, manager new business department, Henry L. Doherty & Co., New York.

Selling the Consumer Direct—E. H. Kauffman, educational director, the Fuller Brush Co., Hartford, Conn.

The A. G. A. Central Testing Laboratory and Selling Specification Goods—N. T. Sellman, assistant secretary-manager, American Gas Association, headquarters staff, New York.

How to Co-operate with the Architects, Builders, Plumbers, etc.—W. A. Adams, manager Architects and Builders Section, the Peoples Gas Light & Coke Co., Chicago, Ill.

The Home Service Department—Its Effect on Gas Sales and Public Relations.

Three hours each morning will be given over to real business—live, snappy discussions of subjects which will enable the sales executives to go back home and put into practice some of the best ideas and plans of other companies who have handled these matters successfully.

The two weeks in August were selected because it will enable many men to plan to spend part of their vacation period at Millbrook and to bring their wives along.

Recreation features will be provided, but they are not intended as the drawing card to the conference.

Public Service Commission Approves Gas Schedule

Albany, N. Y.—Gas service supplied in village of Clifton Springs and towns of Manchester and Phelps, county of Ontario, N. Y. Schedule filed to become effective July 1, 1924, charges rate for light and fuel service from $1.75 per M. cu. ft. (no discount for prompt payment) to $1.85 per M. cu. ft. (subject to discount of 10c per M. cu. ft. if bills are paid on or before the 10th day of month following month for which rendered.

Capital Stock Increased

The Adirondack Power & Light Corporation, Schenectady, operating in eleven counties in the eastern and southern Adirondack water shed, has increased its capital stock from $25,000,000 to $30,000,000.

Gas Men Honor Mr. Nettleton

The June meeting of the Society of Gas Lighting was held at New Haven on the 19th, at which time a handsome silver bowl was presented to the president, Mr. Charles H. Nettleton, which, in addition to his initials in monogram, had the following inscription: "Charles H. Nettleton, an Appreciation from His Fellow Members of the Society of Gas Lighting, June, 1924."

The Gas Company's Stock

The Public Service Company of Colorado, in November, 1923, sold some of its stock to its customers at $93.50 a share. It is now selling for $96. The yield is about 7.29 per cent, the interest being paid monthly. While all of this good work was going on the Denver Clearing House voted that, commencing October 1, 1924, all Denver banks, members of the Clearing House, would reduce the interest paid on saving deposits from 4 per cent, compounded semi-annually, to 3½ per cent.

Clare N. Stannard Honored

Clare N. Stannard, vice-president and general manager of the Public Service Company of Colorado, has been named regional director, representing the national lighting committee of the Society of Electrical Development of New York. He has supervision over Colorado, Wyoming and New Mexico.

Gas Ranges on Easy Terms

The month of June finds the Public Service Company of Colorado, selling high class, nationally advertised gas ranges at $1 down and the balance on easy monthly terms. This beats having these wonderful utensils resting in the stock room and getting dusty. Think it over and try it out.

Doherty's School in Denver

Henry L. Doherty, at his company's plant in Denver, Colorado, on July 1, selected 35 young college men, from among 200, and they will undergo a training for 104 weeks in all branches as applied to the gas and electric business. Those who show up well will be given positions with the Cities Service Company, and those who show up "extraordinarily" well will not only be given a position, but their future will be watched so that in case of a vacancy in the executive department they will be installed.

Unless all pass a certain mark

they will be automatically dropped and others will be tried.

Guy W. Faller, assistant vice-president of the Denver office, is in charge of the course as a director.

G. E. Scanlan Joins the Roper Organization

Rockford, Ill.—It will be interesting news to the gas fraternity to know that the Geo. D. Roper Corporation have again added to their sales organization by the addition in the Southwestern territory of Mr. G. E. Scanlan, who has traveled in this particular field for the last 14 years.

Mr. W. L. Powers, who has been working in this particular field, will confine his efforts largely in the future to Ohio, West Virginia and Western Pennsylvania, or the Eastern Natural Gas Belt. Mr. Scanlan will travel the territory formerly covered by Mr. Powers in Oklahoma, Kansas, Missouri and Arkansas.

Roper is to be congratulated on adding such a sterling representative to their strong organization.

The Opportunities of the Public Utility Field

Chicago, Ill.—The public utility business is a splendid field for clean cut, active young men with an ambition to forge ahead, according to Clement Studebaker, Jr., president of the Illinois Power and Light Corporation.

Speaking to 40 security salesmen of his company and others at a luncheon at the Union League Club, Mr. Studebaker said that no other field in competitive business offered so many opportunities as the public utilities.

Relative to the area in which his own company operates, Mr. Studebaker said:

"The Illinois Power and Light Corporation, operating principally in Illinois, is ideally located because of the territory's great agricultural and diversified industrial interests. The territory is one of the most promising in the field of public utilities."

In their work, the president of the company assured the salesmen, they would receive full co-operation from the officers, for the heads of the corporation, he said, were not "rubber stamp" officers, but men actually on the job each day and vitally interested in every phase of the company's activities.

P. C. Dings, chairman of the finance committee, and E. Paul Young, head of the investment department of the corporation, were the other speakers.

Mr. Dings pointed out the attractiveness of the public utility business, particularly its securities. He emphasized the necessity of security salesmen selling the good will of their company, as well as its securities.

"The public utility business is the most popular business in the country today," said E. Paul Young. "Because of lower interest rates on bonds, the preferred stock of the utility companies is very popular; in fact, right now, preferred stock is enjoying its greatest season of popularity."

The salesmen at the meeting were from all parts of Illinois, Iowa, Missouri and Kansas.

Equitable Co. Files Schedule for Raising Gas Rates

Harrisburg, Pa. — A general change in the tariff of the Equitable Gas Company, to become effective July 15, is provided for in a new rate schedule filed with the public service commission, affecting the rates for natural gas in portions of Allegheny, Armstrong, Greene, Washington and Westmoreland counties.

The rate is increased from 53 cents per 1,000 cubic feet for the first 200,000 cubic feet to 63 cents per 1,000 cubic feet for the first 80,000 cubic feet, with a decreasing rate for larger consumers each month. The three-cent discount for prompt payment still is provided for in the new schedule. On prepayment meters, the rate is increased from 25 cents per 425 cubic feet to 25 cents per 375 cubic feet. The date of the termination of the special summer rate is changed from October 31 to November 30.

New Rates for Rochester Gas & Electric Company

Albany, N. Y.—The Public Service Commission has approved an application of the Rochester Gas and Electric Corporation for permission to put into effect a new rate for gas to be supplied in its Rochester district. The new rate becomes effective immediately.

The schedule adds a new classification, No. 2, which shall be available during the period from April 15 to October 15, inclusive, to all customers whose consumption during that period is 20,000 cu. ft. per month or over. Two rates are established, one known as the "winter rate," and the other as the "summer rate." Users of gas during the period from October 16 to April 14, inclusive, will pay at the present rate for gas.

During the remaining portion of the year, or the summer period, the customer will pay at the winter rate for all gas used up to an amount equal to the maximum consumption per month during any month of the winter period, and for that portion in excess of the maximum winter month consumption at the summer rate, which is as follows:

		Winter per M. (net)	Summer Per M.
	cu. ft. per mo.	cu. ft.	cu. ft.
First	20,000..	$1.00	$0.80
Next	30,000..	.95	.80
Next	50,000..	.85	.70
Next	100,000..	.75	.60
Next	300,000..	.65	.55
Next	500,000..	.60	.50
All over	1,000,000..	.55	.50

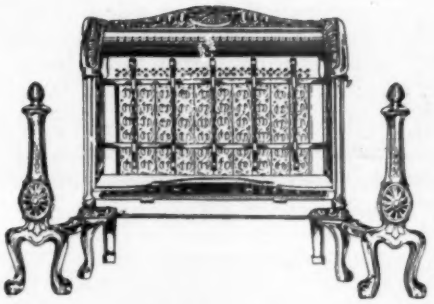
A minimum charge of $16 per month is provided for the summer period and for the winter period 50 cents net per month, the latter being the minimum provided in classification No. 1.

The memorandum of the Commission says:

"The purpose of this rate is to induce the use of gas in the summer season by industries and hotels or similar institutions which in the winter period secure hot water, for instance, from their heating system and which must of necessity maintain an inefficient heating system during the summer season; that is, they must run boilers designed for a large capacity of steam in order to supply the domestic hot water demands of the building which they serve.

"The Rochester company for two years has been encouraging the use of gas for house heating purposes. This has not yet developed into an extensive business, but there is evidence that the company will probably have a demand

These Features of Welsbach Heaters Mean Big Sales for You



No. 27 with andirons. Furnished in either oxidized Brass or Black and Verde.

Equipped with ten glowers and self lighter. Can also be furnished without andirons.

Self Lighter

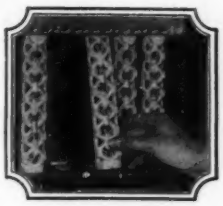
This is an exclusive Welsbach feature which starts a flame without using matches. A fat hot spark is flashed into the glowers, lighting the gas evenly and smoothly.

Welsbach Gas Heaters have numerous points of superiority which are distinctive to Welsbach design—features which are so valuable that they are producing sales wherever Welsbach Heaters are shown.

The questions people used to ask about gas heaters—"Are they economical?"—"Are they odorless?" are answered once and for all in the efficient performance of these super heaters.

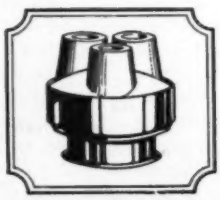
In the design of Welsbach Heaters you will find the very things which discriminating buyers insist upon having in the heaters they buy. Maximum heat production, resulting from an exceptionally efficient burner. Full radiation of heat—produced by metal reflector. Absolute convenience found in eliminating the need for matches and using a pyrophoric self lighter instead. Proper combustion insured by screening the air used, thus keeping all dust and dirt from the burner caps.

The Welsbach line offers a wide choice of attractive models for both portable or fireplace use, in styles and finishes to meet every taste. It is the most practical means of extending the use of gas as an auxiliary heating service among your consumers. Make use of it to increase your sales.



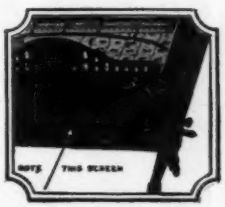
Glowers Kept from Breaking

Note the way Welsbach glowers are set in place. They can't fall out and break, although each glower can easily be removed.



Burner Tips That Don't Clog

Welsbach burner tips have a fire-clay top—not one of metal which rusts, corrodes and clogs. Tips are designed for both natural and artificial gas. The illustration shown above is for artificial



Protection from Dust

The wire screen shown over the air intake is another exclusive Welsbach feature. It prevents dust from clogging the burner orifices and insures proper combustion and maximum heating power.

WELSBACH COMPANY

Gloucester New Jersey

Member American Gas Association

Welsbach GAS HEATERS

When in the Market, consult an advertisement.

Cities Service Co. in May

Gross earnings of Cities Service Co. for the 12 months ending with May 31, 1924, were $16,970,501 as compared with $16,158,219 in the corresponding period of the preceding year. In the same 12 months net earnings amounted to $16,432,588 as compared with $15,665,347, and net to common stock and reserves was $9,091,317 as compared with $8,145,188. This was the equivalent of $19.67 a share earned on the average amount of common stock outstanding. In the 12 months ending May 31, 1923, $17.50 a share was earned on the common stock. Preferred dividends were earned 2.81 times as compared with 2.65 times in the 12 months ending May 31, 1923. In May gross earnings amounted to $1,855,491 as compared with $1,589,994, and net to common stock and reserves was $1,210,608 against $907,151 in May, 1923.

A Gas Man and Wife on Trip Around World

Mr. and Mrs. A. B. Slater

Winamac to Get Gas Service

Fort Wayne, Ind.—Gas service is to be supplied by the Northern Indiana Gas and Electric Company of this city to citizens in Winamac, county seat of Pulaski county, according to an announcement just made by Vice-President S. E. Mulholland of the company.

Residents of Winamac, anxious to get gas in the town, subscribed to over $12,000 worth of class "A" 7 per cent preferred stock of the company to finance about one-half the cost of laying the gas distribution system in the town.

Extension of gas service to Winamac is possible only because of the existence and operation of the public service gas pipe operated by the Public Service Pipe Line Company, which extends from East Chicago to Kokomo, a distance of approximately 125 miles. This pipe line, which was laid in the old days of natural gas in Indiana and which was used to send gas from natural gas fields southwest of Kokomo to Chicago, runs about three and one-half miles west of Winamac.

Citizens of Winamac opened negotiations with the Northern Indiana Gas and Electric Company this spring for the purpose of ascertaining whether or not they could obtain gas service through this pipe line. The matter was taken up with the company by the Kiwanis Club and Mr. Mulholland had a survey made and reported that the cost of laying a gas distributing system in Winamac and connecting it with the pipe line would be about $25,000. Members of the Kiwanis Club then agreed to conduct a sale of the company's securities among citizens of the town in order to finance at least one-half of the cost.

During the last few weeks a little over 100 residents of Winamac have subscribed for the stock and the company has agreed to extend its gas mains to the town. At the present time 264 residents have signed applications for gas service in their homes, which is about 82 per cent of the total number of homes in the city within the radius of the proposed distribution system.

Shipments of gas mains are already being made and the work of laying the mains will start soon. It is expected that the town will have gas service early in the fall.

"The importance of the gas pipe line to many communities between East Chicago and Kokomo is demonstrated by what is being done in Winamac,' said Mr. Mulholland, in announcing plans for the inauguration of gas service to the town. "This pipe line, which is 10 inches in diameter and capable of carrying an adequate supply of gas to many communities in the vicinity of its right of way, was built many years ago for the purpose of sending natural gas to Chicago.

"When the natural gas supply gave out it was utilized to some extent for transporting manufactured gas, but the communities it served were limited. Now, however, communities near this pipe line are awakening to the fact that it is possible for them to receive gas service, which would be an impossibility if the pipe line were not there.

"The cost of building a gas manufacturing plant and distributing system in many communities would be so great that the rates which it would be necessary to charge for service in order to earn a return on the value of the property would be prohibitory to the average person. By making a connection with the pipe line, however, citizens in Winamac will be able to have modern and efficient gas service in their homes at reasonable rates.

"Citizens of other communities have discussed the subject with us and we may be able to furnish them with gas service; also, especially, if they will do as the people of Winamac have done and help finance the improvement by making investment in our securities.

"The utilization of the pipe line for the long-distance transmission and distribution of manufactured gas, means application in the manufactured gas business of the same principles which have governed the large scale production and distribution of electrical energy."

It is believed that other communities which can be served from this pipe line will soon be asking for service.

R. D. Bean Appointed Chief Engineer

R. D. Bean has been appointed chief engineer of the Brown Instrument Company.